

DATE: August 21, 1997

TO: All Air Management Staff

FROM: Lloyd L. Eagan

SUBJECT: Guidelines for Determining Emissions From Lithographic Printing Facilities

INTRODUCTION

DNR staff, in conjunction with representatives of the lithographic printing industry, have examined the issue of how to determine volatile organic compound air emissions from lithographic printing facilities. The group examined EPA documents, technical articles, stack test results and utilized DNR's and the printing industry's experience and expertise to determine appropriate methods to calculate these emissions. Participants in these discussions have included DNR staff Jim Crawford, Bob Eckdale, Dean Packard, Joe Brehm, Joe Perez, Mike Sloat, Dan Johnston, Marcia Penner and Caroline Garber. Printing industry representatives included Hank Handzel and Bill Johnson representing Printing Industries of Wisconsin and Gary Jones of the Graphic Arts Technical Foundation.

The group was able to reach consensus on guidelines for estimating emissions from lithographic printing facilities. Input on these issues was obtained from Ron VanMersbergen (EPA, Region V) and Dave Salman (EPA, Office of Air Quality Planning and Standards).

The purpose of this document is to provide guidelines for calculating air emissions from lithographic printing facilities. Accurate emissions information is needed for various purposes, including for compliance demonstrations with emissions limits, for permit applicability and categorization and for emission inventories and fee calculations. These guidelines should be used for all of these purposes, except as noted below.

A lithographic facility should always be given the option of conducting tests to demonstrate what its emissions are, as noted in the body of this memo. If the facility does not wish to conduct tests, the values set forth in this memo should be used to calculate emissions. However, if a facility decides to conduct tests, the test results should be utilized rather than the guidelines in this memo.

These guidelines apply to all lithographic printers in Wisconsin. However, it should be noted that certain facilities are regulated under s. NR 422.142, Wis. Adm. Code, which contains the Reasonably Available Control Technology (RACT) rules for lithographers located in certain counties of the state. Those rules apply to facilities covered by the applicability section, s. NR 422.142(1), Wis. Adm. Code. To the extent that those rules govern facilities, they should be applied as written. However, if the RACT rules do not address an issue, then the guidelines in this memo should be used.

This document is intended solely as guidance, and does not contain any mandatory requirements, except where requirements found in statutes or administrative rules are referenced. This guidance does not establish or affect legal rights or obligations, and is not finally determinative of any of the issues addressed.

This guidance cannot be relied upon and does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the DNR in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

I. Capture Efficiency Factors for Heatset Web Offset Presses

A. Ink VOC Capture Efficiency:

1. 100%-Provided the conditions in a), b), or c) are met:

- a) The press dryer is operated at negative pressure relative to the surrounding pressroom and the dryer is equipped with an extended smoke tunnel*.
- b) The press dryer is operated at negative pressure relative to the surrounding pressroom and the dryer technology used eliminates

the need for a smoke tunnel. Examples of current dryer technology that eliminate the need for smoke tunnels are (1) dryers with distinct drying zones in which the final zone cools the web; and (2) dryers with an integral control device that captures emissions before the web exits the dryers.

c) The press dryer is operated at negative pressure relative to the surrounding pressroom and there are no visible emissions directly attributable to the press or dryer.

Note: Visible emissions are allowed at start-up. A start-up is defined as the period of time occurring after the press starts to operate, but prior to an acceptable product being saved.

*The term A extended smoke tunnel is defined as a smoke tunnel extended to the point of web contact with the first chill roll.

2. **92%**- Provided that the press dryer is operated at negative pressure relative to the surrounding pressroom and there are visible emissions directly attributable to the press or dryer.

3. **0%**-If neither of the above options in 1. or 2. are met.

The printer always has the option of testing to determine their own specific ink VOC capture efficiency.

B. Automatic Blanket Wash VOC Capture Efficiency:

1. **40%**-provided both of the following conditions are met:

a) VOC composite vapor pressure is 10 mm Hg @ 68°F or less, or the automatic blanket wash contains less than 30% by weight VOC, and

b) The press dryer is operated at negative pressure relative to the surrounding pressroom.

2. **35%**-provided both of the following conditions are met:

a) VOC composite vapor pressure is greater than 10 mm Hg but less than 25 mm Hg @ 68°F, or the automatic blanket wash contains more than 30% by weight VOC, and

b) The press dryer is operated at negative pressure relative to the surrounding pressroom.

3. **0%**-If neither of the above options are met.

The printer always has the option of testing to determine their own specific automatic blanket wash VOC capture efficiency.

C. Fountain Solution VOC Capture Efficiency:

1. **70%**-Provided both of the following conditions are met:

a) The fountain solution does not contain a restricted alcohol, and

b) The press dryer is operated at negative pressure relative to the surrounding pressroom.

2. **50%**-Provided both of the following conditions are met:

- a) The fountain solution contains a restricted alcohol and is refrigerated to $\leq 60^{\circ}\text{F}$, and
- b) The press dryer is operated at negative pressure relative to the surrounding pressroom.

3. 0%-If neither of the above options are met.

The printer always has the option of testing to determine their own specific fountain solution VOC capture efficiency.

II. Ink VOC Retention Factors on Paper Substrate

A. **Heatset Web**

15% of the VOCs are retained on the web.

B. **Nonheatset Web and Sheet Fed Ink**

95% of the VOCs are retained on the web or sheet.

The printer always has the option of testing to determine their own specific web retention factors.

III. Retention Factors for Cleanup Solvent on Shop Towels

A. 50%-Provided all of the following conditions are met:

- 1. VOC composite vapor pressure is 10 mm Hg @ 68°F or less, or the cleanup solvent contains less than 30% by weight VOC;
- 2. Shop towels are handled properly, laundered, incinerated, or disposed of following all appropriate regulations; and
- 3. Soiled towels are kept in closed containers both on site and during transport off site.

B. 40%-Provided all of the following conditions are met:

- 1. VOC composite vapor pressure is greater than 10 mm Hg but less than 25 mm Hg @ 68°F or the cleanup solvent contains more than 30% by weight VOC;
- 2. Shop towels are handled properly, laundered, incinerated, or disposed of following all appropriate regulations; and
- 3. Soiled towels are kept in closed containers both on-site and during transport off-site.

C. 0%-If neither of the above conditions are met.

The printer always has the option of testing to determine their own specific cleanup solvent retention factor.